



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

## THE PROGRESS OF SCIENCE

ONE HUNDRED YEARS OF  
THE AMERICAN JOURNAL  
OF SCIENCE

IN July, 1818, *The American Journal of Science and Arts* was established by Benjamin Silliman, professor, as the title page of the first number states, of chemistry, mineralogy, etc., in Yale College. In the century that has since elapsed, the journal has witnessed and been itself a part in the most notable of all performances, the development of modern science. The present editor, Edward S. Dana, the grandson of Silliman, and like him professor at Yale, including mineralogy and other physical sciences in his field, has done well to issue a centennial number of the journal and himself review its history, while other contributors, who have been active in its work, sketch the history of the sciences covered by it. These articles have been made the basis of seven Silliman lectures, to be published by the Yale University Press, in accordance with the terms of the foundation established by a nephew of Benjamin Silliman.

The advancement of science in the past century and its progress in this country are the more notable if we compare the present situation with the humble and almost naïve beginnings of the *Journal*, and contrast them with other forms of human achievement, as poetry, literature, music and the fine arts, which at most have remained stationary, while our political institutions have progressed so little that they permit wars as devastating as those of the Napoleonic era.

The *Journal* was a modest quarterly, but the "Plan of the Work" with which it opens includes an am-

bitious medley of subjects which indicates so correctly the situation of science a hundred years ago that it deserves to be quoted:

This Journal is intended to embrace the circle of THE PHYSICAL SCIENCES, with their application to THE ARTS, and to every useful purpose.

It is designed as a deposit for *original American communications*; but will contain also occasional selections from Foreign Journals, and notices of the progress of science in other countries. Within its plan are embraced

NATURAL HISTORY, in its three great departments of MINERALOGY, BOTANY, and ZOOLOGY;

CHEMISTRY and NATURAL PHILOSOPHY, in their various branches: and MATHEMATICS, pure and mixed.

It will be a leading object to illustrate AMERICAN NATURAL HISTORY, and especially our MINERALOGY and GEOLOGY.

The APPLICATIONS of these sciences are obviously as numerous as *physical arts*, and *physical wants*; for no one of these arts or wants can be named which is not connected with them.

While SCIENCE will be cherished *for its own sake*, and with a due respect for its own *inherent* dignity; it will also be employed as the *hand-maid* to the Arts. Its numerous applications to AGRICULTURE, the earliest and most important of them; to our MANUFACTURES, both mechanical and chemical; and to our DOMESTIC ECONOMY, will be carefully sought out, and faithfully made.

It is also within the design of this Journal to receive communications on MUSIC, SCULPTURE, ENGRAVING, PAINTING, and generally on the fine and liberal, as well as useful arts;

On Military and Civil Engineering, and the art of Navigation.

Notices, Reviews, and Analyses of new scientific works, and of new Inventions, and Specifications of Patents;

Biographical and Obituary Notices of scientific men; essays on

THE  
**AMERICAN**  
**JOURNAL OF SCIENCE,**  
 MORE ESPECIALLY OF  
**MINERALOGY, GEOLOGY,**  
 AND THE  
**OTHER BRANCHES OF NATURAL HISTORY;**  
 INCLUDING ALSO  
**AGRICULTURE**  
 AND THE  
 ORNAMENTAL AS WELL AS USEFUL  
**ARTS.**

CONDUCTED BY

**BENJAMIN SILLIMAN.**

PROFESSOR OF CHEMISTRY, MINERALOGY, ETC. IN YALE COLLEGE, AUTHOR OF  
 TRAVELS IN ENGLAND, SCOTLAND, AND HOLLAND, ETC

**VOL. I.....NO. I.**

ENGRAVING IN THE PRESENT NO.

New apparatus for the combustion of TAR, &c. by the vapour of  
 water.

**New-York:**

**PUBLISHED BY J. EASTBURN AND CO. LITERARY ROOMS, BROADWAY,**  
**AND BY HOWE AND SPALDING, NEW-HAVEN.**

Abraham Paul, printer,

1818.

COMPARATIVE ANATOMY and PHYSIOLOGY, and generally on such other branches of medicine as depend on scientific principles;

Meteorological Registers, and Reports of Agricultural Experiments: and we would leave room also for interesting miscellaneous things, not perhaps exactly included under either of the above heads.

For half a century the *American Journal of Science* remained practically our only scientific journal. Then in 1867 THE AMERICAN NATURALIST was established, followed in 1872 by *The Popular Science Monthly*, of which THE SCIENTIFIC MONTHLY is the editorial successor, and in 1883 by the weekly journal SCIENCE. Simultaneously special journals began to appear: in 1875 the *Botanical Bulletin*, the predecessor of *The Botanical Gazette*; in 1878 the *American Journal of Mathematics*, in 1879 *The American Chemical Journal*, now merged with the *Journal of the American Chemical Society*; in 1888, *The American Geologist*, no longer published, in 1887 *The Journal of Morphology*, and so on, in increasing numbers until to-day the files of our scientific journals fill alcoves of a library. The American Journal of Science is now only one in a large group of journals, but it occupies an important place earned not only by its history but also by its present high standard in the publication of scientific research.

#### HOURS, FATIGUE AND HEALTH IN BRITISH MUNITION FACTORIES

HOURS, fatigue and health in British munition factories is the title of a Bulletin, No. 221, issued by the Bureau of Labor Statistics of the U. S. Department of Labor as the first of a series of bulletins prepared at the instance of the Council of National Defense for the purpose of giving wide circulation to the experiences of Great Britain,

France, Canada and other countries in dealing with labor in the production of the largest quantity of munitions in the shortest space of time. The bulletin contains the reprint of eight memoranda published by the British Health of Munition Workers' Committee which was appointed in September, 1915, "to consider and advise in questions of industrial fatigue, hours of labor, and other matters affecting the personal health and physical efficiency of workers in munition factories and workshops." These memoranda deal with Sunday labor, hours of work, output in relation to hours of work, industrial fatigue and its causes, sickness and injury, special industrial diseases, ventilation and lighting in munition factories and workshops, the effects of industrial conditions upon eyesight.

From a perusal of these memoranda it appears that Sunday labor, in the opinion of the committee, is not profitable and that continuous work "is a profound mistake" and does not lead to increased output; that a system of shifts although impracticable in some cases is to be preferred to overtime, since the latter taxes the strength of workers too severely, results in loss of time because of exhaustion and sickness, and curtails unduly the period of rest; that night work should be discouraged, that output can not be maintained at the highest level for any considerable period if the conditions are such as to lead to excessive fatigue and to deterioration in the health of the worker, with a recommendation that hours should not exceed 56 per week for men engaged in very heavy labor, or 60 for men engaged in moderately heavy labor, while 64 should be a maximum.

The committee's study of industrial fatigue and its causes sums up its own studies of hours of labor, emphasizing the importance of reg-